



09/579,646.

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<b>TRANSMITTAL FORM</b>  (to be used for all correspondence after initial filing)	Application Number	Patent#: 7,123,301
	Filing Date	Issued: October 17, 2006
	First Named Inventor	Katsufumi Nakamura
	Art Unit	2615
	Examiner Name	B. C. Genco
Total Number of Pages in This Submission	Attorney Docket Number	A0312.70363US00

**ENCLOSURES (Check all that apply)**

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Reply to Missing Parts/Incomplete Application <input type="checkbox"/> Reply to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____ <input type="checkbox"/> Landscape Table on CD	<input type="checkbox"/> After Allowance Communication to TC <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please Identify below): Request for Certificate of Correction; Certificate of Correction; Copy of patent page showing changes marked in red; and Return Receipt postcard
<div>Remarks</div> <div><b>Certificate of Correction</b> DEC 20 2006</div>		

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm Name	WOLF, GREENFIELD & SACKS, P.C.		
Signature			
Printed name	Melissa A. Beede		
Date	December 15, 2006	Reg. No.	54,986

**Certificate of Mailing Under 37 CFR 1.8(a)**

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Dated: December 15, 2006

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DEC 22 2006



Docket No.: A0312.70363US00  
(PATENT)

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicant: Katsufumi Nakamura et al.  
Serial No.: 09/579,646  
Confirmation No.: 8011  
Filed: May 26, 2000  
Patent No.: 7,123,301  
For: PIXEL GAIN AMPLIFIER

Examiner: B. C. Genco  
Art Unit: 2615

**Certificate of Mailing Under 37 CFR 1.8(a)**

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Dated: December \_\_, 2006

**REQUEST FOR CERTIFICATE OF CORRECTION**  
**PURSUANT TO 37 CFR 1.322**

Attention: Certificate of Correction Branch  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Dear Sir:

Upon reviewing the above-identified patent, Patentee noted typographical errors which should be corrected.

In the Claims:

In claim 3, col. 5, lines 40-41, please change "circuit pixel gain amplifier." to -- pixel gain amplifier circuit. --

In claim 6, col. 5, line 49, please change "circuit pixel gain amplifier." to -- pixel gain amplifier circuit. --

In claim 9, col. 6, line 9, please change "circuit pixel gain amplifier," to -- pixel gain amplifier circuit, --

In claim 14, col. 6, line 36, please change "circuit pixel gain amplifier." to read -- pixel gain amplifier circuit. --

In the Examiner's Amendment included with the Notice of Allowability mailed May 24, 2006, the words "pixel Gain Amplifier" were inserted before the word "circuit". Therefore, Patentee respectfully submits that since the errors for which a Certificate of Correction is sought was the result of a Patent Office mistake , (and not an amendment made by either the Patentee or Examiner) no fee is due. However, if a fee is deemed necessary please debit the deposit account 23/2825.

Transmitted herewith is a proposed Certificate of Correction effecting such amendment. Patentee respectfully solicits the granting of the requested Certificate of Correction.

Dated: December 15, 2006

Respectfully submitted,

By Melissa Beede  
Melissa A. Beede  
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UNITED STATES PATENT AND TRADEMARK OFFICE  
CERTIFICATE OF CORRECTION

Page 1 of 1

PATENT NO. : 7,123,301  
APPLICATION NO. : 09/579,646  
ISSUE DATE : October 17, 2006  
INVENTOR(S) : Katsufumi Nakamura et al.

It is certified that an error appears or errors appear in the above-identified patent and that said Letters Patent is hereby corrected as shown below:

**\*\* In claim 3, col. 5, lines 40-41, "circuit pixel gain amplifier." should read -- pixel gain amplifier circuit. --**

**In claim 6, col. 5, line 49, "circuit pixel gain amplifier." should read -- pixel gain amplifier circuit. --**

**In claim 9, col. 6, line 9, "circuit pixel gain amplifier," should read -- pixel gain amplifier circuit, --**

**In claim 14, col. 6, line 36, "circuit pixel gain amplifier." should read -- pixel gain amplifier circuit. -- \*\***

Certificate of Mailing Under 37 CFR 1.8(a)

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Dated: December 15, 2006

Signature: Melissa Beede

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5

in feedback in the q2 phase, so there is always at least one capacitor in the feedback capacitor array.

Advantages of the CDS/PxGA include: (a) the PxGA operation is performed simultaneously with the CDS operation, so no extra circuit is required; (b) a simple method can be used for offset correction, independent of pixel gain; (c) the PxGA gain curve is guaranteed monotonic; and (d) all pixels are processed through the same signal path, avoiding pixel-to-pixel offset.

Having thus described at least one illustrative embodiment of the invention, various alterations, modifications and improvements will readily occur to those skilled in the art. Such alterations, modifications and improvements are intended to be within the spirit and scope of the invention. For example, the invention need not be limited to image applications in which pixels are sampled, nor need it be limited to a switched capacitor circuit. Accordingly, the foregoing description is by way of example only and is not intended as limiting. The invention is limited only as defined in the following claims and the equivalents thereto.

What is claimed is:

1. A correlated double sampling pixel gain amplifier circuit comprising:

an input and an output; an amplifier having an input and an output;

an input capacitor onto which input capacitor charge from an input pixel is sampled during a first of first and second time phases, wherein the input capacitor is functionally coupled to the input of the amplifier and to the input of the pixel gain amplifier circuit during the first and second time phases; and

a feedback capacitor, coupled between the input and the output of the amplifier, that samples a reference voltage during the first time phase and receives charge from the input capacitor during the second time phase.

2. The pixel gain amplifier circuit as claimed in claim 1 wherein the input capacitor includes a variable capacitor.

3. The pixel gain amplifier circuit of claim 2 wherein a capacitance of the input capacitor changes at a rate corresponding to a rate at which pixels are input into the pixel gain amplifier.

4. The pixel gain amplifier circuit as claimed in claim 1 wherein the feedback capacitor includes a variable capacitor.

5. The pixel gain amplifier circuit as claimed in claim 4 wherein the feedback capacitor comprises a capacitor array.

6. The pixel gain amplifier circuit of claims 4 or 5 wherein a capacitance of the feedback capacitor changes at a rate corresponding to a rate at which pixels are input into the pixel gain amplifier.

*circuit.*

6

7. The pixel gain amplifier circuit as claimed in claim 1 further comprising an offset correction circuit.

8. The pixel gain amplifier circuit of claim 7, wherein an input of the offset correction circuit is coupled to the output of the amplifier and an output of the offset correction circuit is coupled to the input of the amplifier.

9. The pixel gain amplifier circuit of claim 1, wherein the input capacitor and the feedback capacitor, at least partially determine a gain of the pixel gain amplifier, and wherein said gain is variable.

*circuit*

10. The pixel gain amplifier circuit of claim 9, further comprising means for changing said gain at the pixel rate.

11. The pixel gain amplifier circuit of claim 1, wherein the charge sampled onto the input capacitor comprises charge corresponding to pixel data and charge corresponding to reset noise.

12. A correlated double sampling pixel gain amplifier circuit comprising:

an input and an output;

an amplifier having an input, an output and a gain; and means for varying the gain of the amplifier from a first gain for a first pixel to a second gain for a second pixel, wherein the first and second gains are determined, at least in part, by an input capacitor and a feedback capacitor;

wherein the input capacitor is always functionally coupled to the input of the amplifier and to the input of the pixel gain amplifier circuit.

13. The pixel gain amplifier circuit according to claim 12 wherein the means for varying the gain of the amplifier includes a capacitor array.

14. The pixel gain amplifier circuit according to claim 12 wherein the means for varying the gain of the amplifier comprises means for varying the gain of the amplifier at a rate corresponding to a rate at which pixels are input into the pixel gain amplifier.

*circuit*

15. The pixel gain amplifier circuit of claim 12, wherein the input capacitor is a variable capacitor.

16. The pixel gain amplifier circuit of claim 12, wherein the feedback capacitor is a variable capacitor.

17. The pixel gain amplifier circuit of claim 12, further comprising an offset correction circuit, wherein an input of the offset correction circuit is coupled to the output of the amplifier and an output of the offset correction circuit is coupled to the input of the amplifier.

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